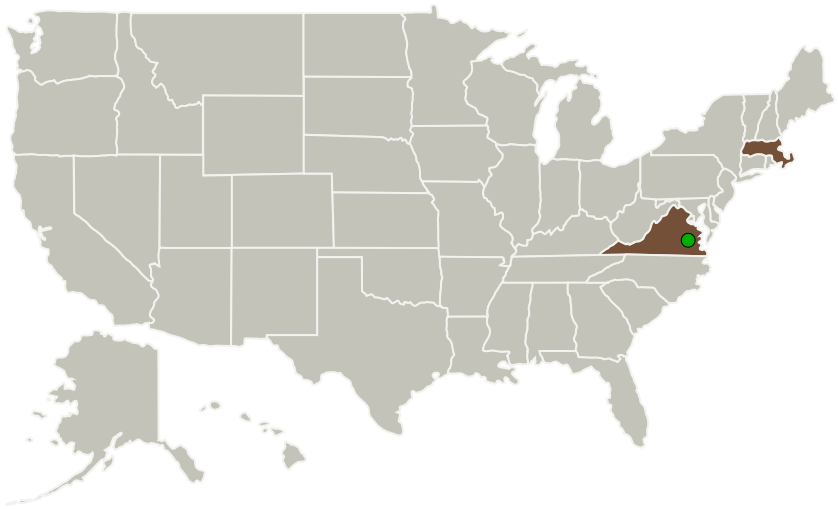
3-color DPAS Aerosol Absorption Monitor, Phase I

Completed Technology Project (2015 - 2015)

Project Introduction

We propose to develop a highly sensitive and compact device to monitor light absorption from atmospheric aerosols simultaneously at three spectral regions, red, green, and blue. The proposed method is primarily based on the differential photoacoustic (DPAS) technique and will also take advantage of the current rapid development on high-power semiconductor lasers. The proposed RGB DPAS Aerosol Absorption Monitor will eventually be less than 25 pounds in weight and consume approximately 300W electrical power. It will also be capable of being remotely controlled and being operated at a variety of sampling pressure conditions for the airborne measurements. Since all the major components of the proposed system are commercially available except the home-designed acoustic cells, its total manufacturing cost could be less than $20,000 per unit.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Aerodyne Research, Inc	Lead Organization	Industry	Billerica, Massachusetts
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Aerodyne Research, Inc

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

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Primary U.S. Work Locations	
Massachusetts	Virginia

Project Transitions

June 2015: Project Start

December 2015: Closed out

Closeout Summary: 3-color DPAS Aerosol Absorption Monitor, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138599)*

Images

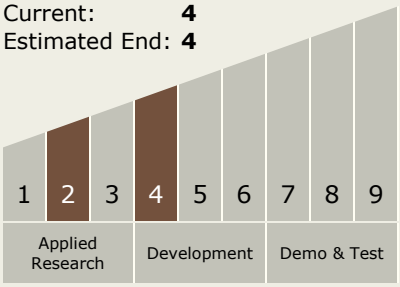
Briefing Chart Image
3-color DPAS Aerosol Absorption Monitor, Phase I
(https://techport.nasa.gov/image/129301)

Project Management *(cont.)*

Co-Investigator:
Zhenhong Yu

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System